***Orbital Webquest***

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_\_\_\_

Go to:

<http://www.youtube.com/watch?v=VfBcfYR1VQo&feature=player_embedded>

Draw all the orbitals shown in the video below.

# Bohr

<http://www.lon-capa.org/~mmp/kap29/Bohr/app.htm>

This site is real good interactive site that gives some information on the Bohr model and the spectral lines that had been observed for hydrogen. Remember, as the website informs us, the only lines that we can see (visible light) are between 440 and 600nM. Just a sliver of the spectrum. Another thing to remember is that if electrons could be found in orbitals at any distance, the spectrum would not be broken into lines, but a continuous smear of colored light…like a rainbow!

<http://www.colorado.edu/physics/2000/quantumzone/bohr.html>

<http://cache.eb.com/eb/image?id=5714>

On this website there is also an interactive feature too…wow these computers…what will they think of next!!

1. What do the incoming squiggles represent when an electron *jumps up* an orbital level?

2. What do the outgoing squiggles represent when an atom *drops down* an orbital level?

3. What are the energy units that are necessary for a *jump up* or that are released in a *drop down* called?

4. What was the Bohr model called?

5. Instead of orbits, how do we refer to the special areas where electrons can be found?

6. So, what is always necessary for an electron to *jumps up* an energy level?

7. So, what is always released when an electron *drops down* an energy level?

8. What is the *particle* of electromagnetic energy that is absorbed when an electron *jumps* *up* an energy level or that is released from an atom when an electron *drops down* an energy level called?

. How do our eyes tell us about the amount of energy that is lost from an atom when an electron drops down in energy?

10. Can our eyes detect all of these energy releases that are produced by the possible energy drops that the electron in a hydrogen atom can produce? What are some of the really high energy releases called?

# Schödinger

<http://www.colorado.edu/physics/2000/quantumzone/schroedinger.html>

1. What does Schödinger say electrons really are?

2. What does the two slit experiment demonstrate?

3. Where does Schödinger say electrons are located?

4. Does Schödinger say that we can ever really predict where electrons will be?

If not, what does he say is the best we can do?

Building-up principle (or Aufbau principle) – a scheme used to reproduce the electron configurations of atoms by successively filling subshells with electrons.

Write the electron configuration map below:

Write the electron configuration for the following elements.

Ar

As

K

Cr

C

Cl

Watch the short movie about the rules governing the order in which electrons are added to the electron cloud.

<http://cwx.prenhall.com/petrucci/medialib/media_portfolio/text_images/043_ElectronConfig.MOV>

* 1. Explain Hund’s Rule.
  2. How is the electron configuration and order of electron addition the same for every element?
  3. Explain why electrons do not feel all orbitals to its max first.